

On the Grids: Traveling to the 2015 AMSAT Space Symposium

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The 2015 AMSAT Space Symposium in Dayton was a great event for me, and not just for the Symposium events. AO-85 had been launched less than a week earlier and was already a very popular discussion topic going into the Symposium. This trip afforded me the opportunity to operate from different locations in and around Dayton, and even make a quick trip north to Canada to operate from some rarely heard grids across the border. In the process, I put almost 1400 miles on a rental car as I operated from eight different grids across Indiana, Michigan, Ohio, and Ontario.

With no direct flights between my home airport of Phoenix and Dayton, I prefer to fly non-stop to a city near Dayton and drive the remaining distance. For this trip, I flew to Indianapolis, with its easily navigated airport, about 100 miles west of Dayton. Arriving on October 14, 2015 (the Wednesday before the Symposium), I decided to drive north on I-69 to a grid I wanted to operate from instead of heading directly to Dayton.

After two hours of driving, I stopped at a rest area in grid EN70fi, about 50 miles north of Indianapolis. I parked with about 30 minutes to spare, enough time to

unpack my radio gear and set up, before a 40-degree AO-85 pass just after 7p.m. local time (2300 UTC). I was ready for the pass!

I used my Icom IC-2820H (2m/70cm FM mobile) as my transmitter and an SDRplay SDR receiver with an 8-inch Windows 10 tablet as my receiver, both of which were connected through a diplexer to my Elk log periodic antenna. In the span of seven minutes, I logged seven contacts. One of these contacts was Paul, N8HM, who was already in Dayton for the Symposium. AO-85 already was becoming popular among satellite operators.

After this pass, I continued driving north, stopping at Fort Wayne for the evening. I worked another AO-85 pass from there, just across the line into grid EN71, using the same IC-2820H/SDRplay combination. I logged eight contacts on a 32-degree pass to my west. The next morning, I worked a LilacSat-2 pass before getting back on the road. I logged four contacts on this pass, the only LilacSat-2 pass I worked on this trip.

From Fort Wayne, I drove northeast to the Indiana/Michigan/Ohio border tri-point. This marked location is on a quiet two-lane road north of I-80/I-90 and west of Toledo in grid EN71oq. A Michigan historical society placed a marker with the letter M into the roadway and erected a small monument describing the border marker just north of the tri-point. With the tri-point located in the middle of the road, and with traffic on the road during the day, I had to carry my gear and stand on the spot when I worked passes. This was no problem with the SO-50 passes I worked with a Kenwood TH-D72A and Elk log periodic. For the FO-29 pass I worked from the tri-point, I put my two FT-

817NDs around my neck and held the Elk.

From the tri-point, I worked three SO-50 passes and two FO-29 passes. While EN71 is not a rare grid, operators are interested in working a station where three states come together. I logged a total of 21 contacts on the 3 SO-50 passes, and 4 more contacts on one of the FO-29 passes. Before I left the area, I chatted with a local civil engineer working in the area, answering questions about my radio equipment and why I was operating at this location.

After leaving the tri-point, I drove towards Dayton for the Symposium. Making two stops along the way, I worked a pair of AO-85 passes from locations in grid EN70. Four contacts were logged on a 12-degree eastern pass, and 8 more were logged on an 81-degree western pass before reaching Dayton in the late evening. My drive from Indianapolis to Dayton, with the detour through Fort Wayne and the border tri-point, was 400 miles.

During the Symposium, I worked satellites on a couple of occasions. On Friday evening (October 16), I worked a pair of AO-85 passes. The first, a 33-degree eastern pass starting at 6:17 p.m., I worked from the parking garage next to the Crowne Plaza Hotel in downtown Dayton. I logged six contacts on this pass. Before the next AO-85 pass around 8 p.m., I drove west on I-70 to the Indiana/Ohio state line. I previously have operated from a parking lot next to a fireworks store at the I-70/US-40 interchange on trips to the Dayton Hamvention. During a 36-degree western pass, I logged eight more contacts from the state line and then returned to Dayton, concluding my 100-mile round trip. Both



Station at I-69 rest area.
Photos courtesy of Patrick Stoddard, WD9EWK.



Close-up of portable station.

Dayton and the fireworks shop at the Indiana/Ohio state line are in grid EM79.

On Sunday (October 18), a quiet day for Symposium activities, a favorable AO-73 pass was predicted just after noon to the west, with maximum elevation of 31 degrees. Four other operators joined me at the Crowne Plaza parking garage with their equipment: Red, KC4LE; Nick, K5QXJ; Paul, N8HM; and Doug, K9DLP. I logged three contacts from the garage. One of those was with Paul, N8HM, about 20 yards north of me. Paul logged three other contacts, while Red and Nick worked on their equipment during the pass.

On Monday (October 19), after a Symposium-sponsored tour of the Air Force Museum at Wright-Patterson Air Force Base, I drove about four hours north to Port Huron, Michigan, on the Canadian border and the EN82/EN83 grid boundary. After checking into a motel for the next two nights, I decided to try working some passes before going to bed. Having worked from grid EN82 in May 2014, I looked for a good operational location from somewhere north of the grid boundary in EN83. I located a suitable shopping center parking lot for a couple of passes.

The first one I tried was a 32-degree AO-73 pass to the east just before 10 p.m. I set up my FT-817ND, tablet and SDRplay receiver for this pass and logged three contacts. Next, I targeted a 36-degree SO-50 pass to my west.

As I swapped transmit radios, replacing the FT-817ND/SDRplay combination with

my IC-2820H, I was greeted by a couple of Port Huron police officers. The officers wanted to know what I was doing out at that hour. Once I explained my satellite operation, they were satisfied. They explained that someone at the nearby Wendy's restaurant called 911 about me. The officers drove off, and I was ready for SO-50. [Editor: For tips on handling such situations, read Patrick's "Close Encounters of the Law Enforcement Kind" in the November/December 2015 issue of *The AMSAT Journal*.]

Despite the noise I heard, I was able to work eight stations on the SO-50 pass. Anticipating that I would be doing a lot of driving and operating the next day, I packed everything up and went back to the motel for the night.

I awoke very early on Tuesday (October 20) for what turned out to be a long day across the border. After breakfast, I drove over the Blue Water Bridge to Sarnia, Ontario. After a 20-minute delay at the border checkpoint, I entered Canada. As I left Sarnia, I stopped to get some snacks and made a quick detour to take some pictures at the Sarnia Chris Hadfield Airport. Sarnia is the hometown of astronaut Chris Hadfield, VA3OOG/KC5RNJ. From Sarnia, I drove two hours to the EN93/EN94 grid boundary, almost 100 miles northeast of Sarnia. I had been asked if I was going to drive in this direction before or after the Symposium, and I decided that this grid boundary would be my target for a post-Symposium road trip. A snowstorm had blown through this area during the Symposium weekend, and some snow remained on the ground as I drove through the area.

The EN93/EN94 grid boundary is about 20 miles north of Goderich, along Ontario highway 21. Seeing this, I decided not to drive back there for lunch, and ate the snacks I bought in Sarnia during the day. This allowed me to work seven passes as VA7EWK/3 at the EN93/EN94 grid boundary – four SO-50 passes and three FO-29 passes. I worked stations all over the continental U.S. and ZF1PB in the Cayman Islands, logging a total of 42 contacts from this grid boundary. Some rain in the afternoon required me to operate with a plastic trash bag over my radios. For FO-29, I used two FT-817NDs, which was easier to manage under the plastic bag than one FT-817ND, and my tablet with the SDRplay SDR receiver. Between passes, I stayed in the car, drying off as I updated my logbook.

On my way back through Sarnia towards my motel in Port Huron, I found XW-2E and XW-2F passes that I could work. These passes occurred after 7 p.m., and I had to decide on a location where I would work them. Near the 402 freeway east of Sarnia is the EN82/EN83/EN92/EN93 four-grid intersection. I worked from EN83 the night before, and I had worked from EN93 (with EN94) earlier in the day, so I planned to work from the EN82/EN92 grid boundary.

I parked along a road south of the 402 freeway, right on the line. The rain had moved on, and I chose my FT-817ND/SDRplay combination for these passes. I worked eight stations on the XW-2E pass, followed by seven more contacts on the XW-2F pass a few minutes later. These passes wrapped up my operations as VA7EWK/3 for this trip.



Working FO-29 at IN-MI-OH tri-point



N8HM, K5QXJ, WD9EWK, K9DLP & KC4LE working AO-73

On Wednesday (October 21), the final day of the trip, I drove 400 miles – a six-hour drive – from Port Huron back to the Indianapolis airport to catch my flight back to Phoenix without working any additional passes. While in the airport and on the plane, I finished updating my logbook and uploaded my contacts to Logbook of the World before arriving in Phoenix.

This was my first trip using an SDR receiver to work satellites. The SDRplay receiver is now a part of my portable satellite station, along with an 8-inch Windows 10 tablet running HDSDR. I made RF recordings of AO-85 passes as I operated. After these passes, I used the RF recordings to upload telemetry to the AMSAT server. The SDR receiver makes SSB/CW transponders easier to work because it allows the operator to see the entire transponder and any signals from the satellite, even with the slight delay in hearing my voice from the tablet while transmitting. These low-end tablets, with prices between \$50 and \$200, have enough computing power to be used with SDR receivers for satellite operating. The combination of an SDR receiver and small tablet is a viable option as the receiver for an all-mode satellite station, at home or in a portable setup.

Another thing that helped satellite operation during the first half of this trip was having AO-85 in orbit and open for operation. AMSAT asked operators to stay off the FM transponder after the Symposium weekend, but having it available before and during the event allowed me to make 41 contacts on 6 passes. Operators were still learning the quirks of this new satellite, and – thanks to AMSAT opening up this satellite so soon after its launch – we had lots of opportunities around the Symposium weekend to work and learn about this new satellite.

I have been working satellites for the past 10 years. During this time, I have worked satellites from 19 different U.S. states, Washington, D.C., and three other countries (Australia, Canada, and Mexico). Anytime I travel, whether by road or air, I look for opportunities to bring along radio gear and work satellites. In some cases, I will adjust my trip so I can operate from some unusual or rarely-heard locations. This trip was no exception. It is much easier to consider working satellites from a portable station than ever before – and fun!



N8HM & K9DLP.



SO-50 station at EN93/EN94



FT-817ND, tablet, SDRplay at Port Huron

